

What is claimed is:

- 1        1.        An optical transponder comprising:  
2                a first TO can having a first insulating base, a photodetector mounted on a first  
3 side of the first insulating base, and a metal cap hermetically sealed to the first side of the  
4 first insulating base to enclose the photodetector; and  
5                a second TO can having a second insulating base, a light generation device  
6 mounted on a first side of the second insulating base, and a metal cap hermetically sealed  
7 to the first side of the second insulating base to enclose the light generation device.
- 1        2.        The optical transponder of claim 1, wherein the first and second insulating bases  
2 are physically coupled to a heat sink.
- 1        3.        The optical transponder of claim 2, wherein the first and second insulating bases  
2 are physically coupled to a metal housing of the optical transponder, and the metal  
3 housing serves as a heat sink.
- 1        4.        The optical transponder of claim 3, wherein the first and second insulating bases  
2 have at least one flat side.
- 1        5.        The optical transponder of claim 3, wherein the optical transponder has an  
2 impedance of approximately 50 ohms.
- 1        6.        An optical transponder comprising:  
2                an optical receiver housed in a first TO can, the optical receiver capable of  
3 receiving optical signals at a rate of at least 10 Gb/s; and  
4                an optical transmitter housed in a second TO can, the optical transmitter capable  
5 of transmitting optical signals at a rate of at least 10 Gb/s, wherein the optical receiver

6 and the optical transmitter each have an insulating base, and each of the insulating bases  
7 have a plurality of electrical leads running through the insulating base into an interior of  
8 the optical receiver and the optical transmitter, respectively.

1 7. The optical transponder of claim 6, wherein the insulating bases are coupled to a  
2 heat sink.

1 8. The optical transponder of claim 7, wherein a housing of the optical transponder  
2 serves as the heat sink.

1 9. The optical transponder of claim 6, wherein the first and second TO cans have an  
2 impedance of approximately 50 ohms.

1 10. An optical transponder comprising:  
2 an optical receiver housed in a first TO can to receive an optical signal at a rate of  
3 10 Gb/s, the first TO can comprising a first insulating base having a first surface on an  
4 interior of the first TO can to which the optical receiver is attached and having an  
5 opposite surface on an exterior of the first TO can;  
6 an optical transmitter housed in a second TO can to transmit optical signals at a  
7 rate of 10 Gb/s, the second TO can comprising a second insulating base having a first  
8 surface on an interior of the second TO can to which the optical transmitter is attached  
9 and an opposite surface on an exterior of the second TO can.

1 11. The optical transponder of claim 10, wherein the first and second TO cans have  
2 an impedance of approximately 50 ohms.